



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Shigeo IIZUKA et al.

Group Art Unit: 3754

Application No.: 10/564,943

Examiner: D. SHEARER

Filed: May 9, 2006

Docket No.: 126691

For: FOAMER DISPENSER

REPLY BRIEF

Appeal from Group 3754

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This Reply Brief is being filed in accordance with 37 C.F.R. §41.41, and in response to the new points of argument raised in the Examiner's Answer dated November 18, 2010. In summary, Appellants have demonstrated that the PTO has not established a *prima facie* case of obviousness with respect to the feature "wherein the meshes have an opening diameter $\phi 2$ which is 2.0 to 3.5 times as large as an opening diameter $\phi 1$ at the inlet opening of the jet ring," as recited in independent claim 1.

To establish a *prima facie* case of obviousness, the PTO must show that the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. §103(a). For a claimed range of parameters, the PTO can establish a *prima facie* case of obviousness if the prior art discloses a range that partially overlaps with or lies completely within the claimed range. MPEP §2144.05(I).

If the prior art fails to disclose such a range, the PTO can only establish a *prima facie* case of obviousness if the general conditions of a claim are shown in the art, and where the claimed range of parameters is a mere optimization of the general conditions. MPEP §2144.05(II). However, a particular parameter must first be recognized as a result-effective variable (a variable which achieves a recognized result), before the parameter can be considered "optimizable." See MPEP §2144.05(II)(B), citing *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

The Examiner's Answer acknowledges that Iizuka fails to disclose a range of parameters that overlaps with or lies entirely within Appellants' claimed range. Examiner's Answer, page 4; *see also* March 25, 2010 Final Rejection, page 3. The Examiner's Answer instead argues that the claimed range would have been an obvious optimization.

During prosecution, without any factual support for such an assertion, the Examiner asserted that the claimed range of ratios would have been optimizable because "it is well known in the art and to a general worker that a change in diameter along a fluid flow path alters the characteristics of flow by introducing turbulence [sic] at the diameter change location and that these characteristics are further altered based on the ratio between the two diameters." *See, e.g.*, Advisory Action, page 1. The Examiner's Answer does not reiterate the above argument, but now asserts that Appellants have acknowledged that the claimed range of ratios is recognized by the prior art as a result-effective variable. Examiner's Answer, page 7.

Specifically, page 7 of the Examiner's Answer argues that paragraphs [0002] and [0003] of Appellants' specification acknowledge that prior art foamer dispensers pass a liquid-air mixture through a foamer element, where the foamer element includes a jet ring, a tubular body and a mesh disposed within the tubular body. The Examiner's Answer then argues that paragraph [0003] of Appellants' specification acknowledges that a narrow inlet opening increases the ejecting speed of the mixed contents. Examiner's Answer, page 7. Based on the above teachings, the Examiner's Answer argues that one of ordinary skill would have been motivated to optimize the ratio between the opening diameter of the jet ring inlet opening and the diameter of the mesh opening to achieve a fine and homogenous foam. *Id.*

Appellants' specification does not acknowledge that the ratio between the diameters of the jet ring inlet opening and the mesh openings is a known result-effective variable. The specification merely discloses that existing foamer elements include a jet ring, a tubular body and a mesh, and that a narrow opening increases the speed of the ejected foam. Paragraph [0003] of Appellants' specification. These teachings in no way acknowledge that a ratio between the mesh opening diameter and the jet ring inlet opening diameter was recognized in the prior art as a result-effective variable.

The specification discloses that existing foamer elements produce foam that varies in quality. Paragraph [0004] of Appellants' specification. To overcome this variance and to consistently improve the quality of the generated foam, Appellants discovered an inventive technique of varying the ratio between the mesh opening diameter and the jet ring inlet opening diameter. Paragraph [0007] of Appellants' specification. Specifically, paragraphs [0004] and [0007] of Appellants' specification disclose:

[0004] However, the present inventors have found that even such a foamer dispenser noted above causes fluctuation in the foam quality depending upon the contents to be foamed such that the ejected coarse foam mixedly includes small and large air bubbles, and have confirmed that a further improvement is possible for creation of foam that is fine and homogeneous to exhibit an excellent appearance and provide comfortable hand feeling.

[0007] With the foamer dispenser according to the present invention, since the mesh has the opening diameter $\phi 2$ which is 2.0 to 3.5 times, preferably 2.2 to 3.2 times, as large as the opening diameter $\phi 1$ at the inlet opening of the jet ring, it is possible to eject a foam having a fine and homogeneous foam quality irrespectively of the contents, thereby exhibiting an excellent appearance and providing comfortable hand feeling of the foam when received on user's hand.

Appellants' specification does not acknowledge that the ratio between the mesh opening diameter and jet ring inlet opening diameter has been recognized in the prior art as a result-effective variable. To the contrary, the present inventors discovered this principle, as specifically stated in paragraph [0007]. *See also* Appeal Brief, page 11, asserting "As taught only by Appellants' specification, the claimed range of ratios recited in independent claim 1 results in fine and homogenous foam, regardless of the contents of the container. This advantage is not disclosed or recognized by the applied art." (Emphasis added).

The Examiner's Answer also argues that the claimed range of ratios recited in independent claim 1 would have been an obvious optimization because one of ordinary skill

would need to choose a ratio between the mesh opening diameter and jet ring inlet opening diameter, so logically, one of ordinary skill would choose such a ratio that achieves the desired foam quality. Appellants respectfully disagree. This argument assumes that one of ordinary skill would have known that varying the above ratio would result in fine and homogenous foam. As discussed above and as argued throughout prosecution, Appellants discovered that the above ratio could be optimized to produce fine and homogenous foam. The mere fact that one of ordinary skill would have a choice regarding the size of the mesh opening diameter and the size of the jet ring inlet opening diameter would not have motivated one of ordinary skill to ensure that the ratio between the diameters of the mesh and jet ring openings falls within a particular range.

Appellants argued in the Appeal Brief that one of ordinary skill would have been motivated to optimize only the size of the mesh opening, and not the ratio between the opening diameter of the jet ring and the opening diameter of the meshes, in order to produce fine and homogenous foam. Appeal Brief, page 11. Appellants supported the above argument by citing to JP 2002-159893A, which discloses the above technique to produce fine and homogenous foam. On pages 8 and 9, the Examiner's Answer argues that the teachings of JP 2002-159893A are irrelevant because "[t]he existence of one method to achieve a desired result is not evidence that one of ordinary skill would not look to alternative methods to achieve the same result."

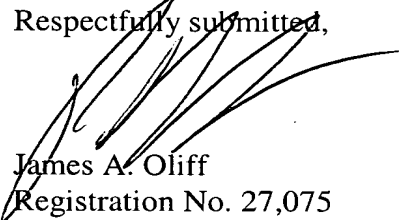
Although it is true that there are several methods for achieving fine and homogenous foam (including Appellants' invention and the disclosure of JP 2002-159893A), the above argument was intended to show the Examiner that one of ordinary skill would have optimized the size of the mesh openings with no regard to the jet ring opening diameter to achieve fine and homogenous foam, as taught by JP 2002-159893A. The above disclosure is further evidence that it was not known in the art, prior to the filing of Appellants' specification, to

modify the ratio between the mesh opening diameter and jet ring inlet opening diameter to achieve fine and homogenous foam.

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For the foregoing reasons, as well as the reasons set forth in Appellants' August 13, 2010 Appeal Brief, Appellants respectfully request this Honorable Board to reverse the rejection of claims 1-9.

Respectfully submitted,



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